

Claims

What is claimed is:

1. An optoelectronic module comprising:
  - a transmitting and/or receiving element,
  - a mount for supporting the transmitting and/or receiving element,
  - a holding and coupling part for receiving the transmitting and/or receiving element and which is at least partially filled with an encapsulation material, and which has a coupling area for receiving an optical waveguide, and
  - an electrical drive and/or receiving circuit coupled to the transmitting and/or receiving element,
  - wherein the encapsulation material surrounds the transmitting and/or receiving element and is located at least partially in the holding and coupling part,
  - wherein the electrical drive and/or receiving circuit is arranged outside the holding and/or coupling part on a submount, which lies on a plane that runs parallel to the longitudinal axis of the coupling area, and
  - wherein the mount is arranged at right angles to the submount.
2. The module as claimed in claim 1, wherein the holding and coupling unit forms a cylindrical cutout, one of whose ends contains the transmitting and/or receiving element, and whose other end forms the coupling area for an optical waveguide.
3. The module as claimed in claim 1, wherein the mount is fitted only with the transmitting and/or receiving element or with the transmitting element and a monitor diode.
4. The module as claimed in claim 1, wherein the mount is a leadframe, which provides an electrical link for the transmitting and/or receiving element and is electrically connected to the submount.
5. The module as claimed in claim 4, wherein the leadframe runs at right angles to the longitudinal axis of the coupling area, at

least in the area of the holding and coupling part.

6. The module as claimed in claim 1, wherein the encapsulation material forms an integrated lens on the side facing the coupling area.

7. The module as claimed in claim 6, wherein a fiber stop ring is formed in the encapsulation material around the lens and prevents the end surface of an optical fiber which is inserted into the coupling area from touching the lens apex.

8. The module as claimed in claim 1, wherein the module is mechanically coupled to a plug housing.

9. The module as claimed in claim 1, wherein the module is mechanically coupled to a naked fiber adaptor.

10. The module as claimed in claim 9, wherein an optical fiber is firmly clamped by means of a clamp in an area of the naked fiber adaptor which is in the form of a trough.

11. The module as claimed in claim 9, wherein the naked fiber adaptor is formed by an extension to the cylindrical coupling area.

12. The module as claimed in claim 1, wherein the submount can be mounted on a main circuit board, in particular by SMD mounting.

13. The module as claimed in claim 12, wherein the main circuit board is used as a heat sink for the submount and/or for the electrical drive and/or receiving circuit which is arranged on the submount, with the submount having plated holes which are also used for heat conduction.

14. The module as claimed in claim 1, wherein the holding and coupling part and/or the submount have/has self-coupling structures which allow automatic adjustment of the elements with respect to one another and/or with respect to a main circuit board.

15. The module as claimed in claim 1, wherein a housing cover is provided and surrounds the submount with the electrical drive and/or receiving circuit, and/or that end of the holding and coupling part which faces away from the coupling area.
16. The module as claimed in claim 1, wherein the holding and coupling part and/or the housing cover are/is provided with an electrically conductive layer, and/or are/is composed of a conductive plastic material.
17. The module as claimed in claim 1, wherein the holding and coupling part is in the form of a double chamber and, in parallel, separate areas, has firstly a transmitting element and secondly a receiving element, each of which can be coupled via a separate coupling area to an optical fiber.
18. The module as claimed in claim 1, wherein the submount is arranged underneath the coupling area of the holding and coupling part.
19. An optoelectronic module comprising:
  - a submount defining a plane;
  - a housing mounted on the submount and defining an opening;
  - a control circuit mounted on the submount such that the control circuit is located outside of the housing;
  - an optoelectronic transducer mounted inside the housing such that the optoelectronic transducer intersects an optical axis extending substantially parallel to the plane and through the opening;
  - a mount extending substantially perpendicular to the plane between the optoelectronic transducer and the submount; and
  - an encapsulation body disposed inside the housing such that a portion of the encapsulation body is located between the optoelectronic transducer and the opening.

20. An optoelectronic module comprising:
  - a printed circuit board defining a plane;
  - a housing mounted on the printed circuit board and defining an opening;
  - a control circuit mounted on the printed circuit board such that the control circuit is located outside of the housing;
  - a lens disposed inside the housing such that the lens defines an optical axis extending through the opening and substantially parallel to the plane defined by the printed circuit board;
  - a leadframe located inside of the housing and having a fixed end coupled to the control circuit, the leadframe extending substantially perpendicular to the plane defined by the printed circuit board; and
  - an optoelectronic transducer coupled to the leadframe and positioned inside the housing such that the optoelectronic transducer intersects the optical axis.